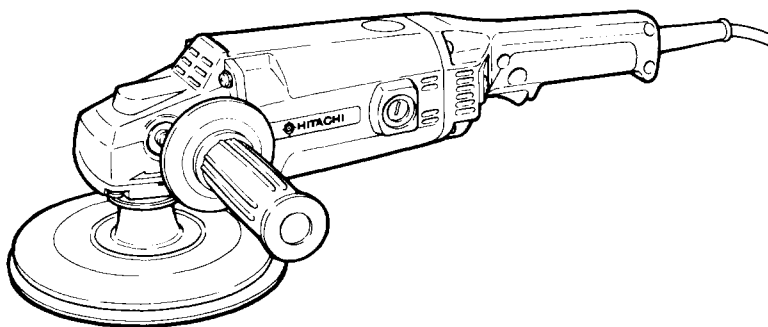




ELECTRONIC SANDER POLISHER

MODEL SP18V

INSTRUCTION MANUAL



Note

Before using this Electric Power Tool, carefully read through this INSTRUCTION MANUAL to ensure efficient, safe operation. It is recommended that this MANUAL be kept readily available as an important reference when using this electric power tool.



DOUBLE INSULATION

We sincerely thank you for selecting a HITACHI ELECTRIC POWER TOOL. To operate this electric power tool safely and efficiently, please read this INSTRUCTION MANUAL carefully to get a good understanding of the precautions in operation, capacity of the electric power tool, use and the like.

IMPORTANT INFORMATION: SAFETY RULES FOR POWER TOOLS

WARNING: When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following.

READ ALL INSTRUCTIONS

- 1. KEEP WORK AREA CLEAN.** Cluttered areas and benches invite injuries.
- 2. CONSIDER WORK AREA ENVIRONMENT.**
 - Don't expose power tools to rain.
 - Don't use power tools in damp or wet locations.
 - Keep work area well lit.
 - Don't use tool in presence of flammable liquids or gases.
 - Power tools produce sparks during operation. They also spark when switching ON/OFF. Never use power tools in dangerous sites containing lacquer, paint, benzine, thinner, gasoline, gases, adhesive agents, and other materials which are combustible or explosive.
- 3. GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces. For example; pipes, radiators, ranges, refrigerator enclosures.
- 4. KEEP CHILDREN AWAY.** Do not let visitors contact tool or extension cord.
 - All visitors should be kept away from work area.
- 5. STORE IDLE TOOLS.** When not in use, tools should be stored in dry, and high or locked-up place-out of reach of children.
- 6. DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was intended.
- 7. USE RIGHT TOOL.** Don't force small tool or attachment to do the job of a heavy-duty tool.
 - Don't use tool for purpose not intended – for example – don't use circular saw for cutting tree limbs or logs.
- 8. DRESS PROPERLY.** Do not wear loose clothing or jewelry. They can be caught in moving parts.
 - Rubber gloves and non-skid footwear are recommended when working outdoors.
 - Wear protective hair covering to contain long hair.
- 9. USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty.
 - All persons in the area where power tools are being operated should also wear safety eye protectors and face or dust masks.

10. **DON'T ABUSE CORD.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.
11. **SECURE WORK.** Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safer performance.
Follow instructions for lubricating and changing accessories.
Inspect tool cords periodically and if damaged, have repaired by authorized service facility.
Inspect extension cords periodically and replace if damaged.
Keep handles dry, clean, and free from oil and grease.
14. **DISCONNECT TOOLS.** When not in use, before servicing, and when changing accessories, such as blades, bits, cutters.
15. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. **AVOID UNINTENTIONAL STARTING.** Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugging in.
17. **OUTDOOR USE EXTENSION CORDS.** When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
18. **STAY ALERT.** Watch what you are doing. Use common sense. Do not operate tool when you are tired.
19. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual.
Have defective switches replaced by authorized service center.
Do not use tool if switch does not turn it on and off.
20. **AVOID USING A POWER TOOL FOR APPLICATIONS OTHER THAN THOSE SPECIFIED.** Never use a power tool for applications other than those specified in the instruction manual.
21. **ENSURE SAFE OPERATION THROUGH CORRECT HANDLING.** Secure safe operation through correct handling by observing the instructions described herein.
Do not employ accessories other than those specified herein; otherwise, a hazardous condition may be created.
Never allow a power tool to be used by persons not familiar with correct handling (such as children) or by those who cannot handle the tool correctly.
22. **CONFIRM THAT NO ITEMS SUCH AS AN ELECTRIC CABLE OR CONDUIT ARE BURIED INSIDE.** In places where live wiring may be hidden behind a wall,

floor, ceiling, etc. do not hold or contact any metal parts of the tool. In such cases, metal parts could become electrically live and present a serious shock hazard.

- 23. KEEP THE RIGHT PARTS IN THE RIGHT POSITIONS.** Do not remove covers and screws which have been factory-mounted. They perform important respective roles. Keep them in the right positions.
- 24. SHOULD THE PLASTIC HOUSING OR HANDLE OF A POWER TOOL BE CRACKED OR DEFORMED, DO NOT USE IT.** Since cracked or deformed parts may lead to an operator receiving an electric shock, do not use such a power tool. Immediately have it repaired.
- 25. SECURELY MOUNT ACCESSORIES AND BLADES TO THE TOOL MAIN BODY.** Extra care must be taken when using tools on elevated location (such as a roof ladder, scaffold, or the like) to prevent injury to someone on a lower level in the event the tool and/or accessory should drop.
- 26. ALWAYS KEEP THE MOTOR AIR VENT FULLY OPENED.** A constantly open motor air vent is necessary to allow air to come in and out for cooling the motor. Do not allow it to become clogged up, even if dust is blown through it.
- 27. OPERATE POWER TOOLS AT THE RATED VOLTAGE.** Operate power tools at voltages specified on their nameplates.
- 28. NEVER TOUCH THE MOVING PARTS.** Never touch the moving parts such as blades, bits, cutters and others.
- 29. STOP OPERATION IMMEDIATELY IF ANY ABNORMALITY IS DETECTED.** Should a power tool be detected as out of order or should other abnormalities be observed during operation, stop using the tool immediately.
- 30. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.
- 31. CAREFULLY HANDLE POWER TOOLS.** Should a power tool be dropped or struck against hard materials inadvertently, it may be deformed, cracked, or damaged.
- 32. DO NOT WIPE PLASTIC PARTS WITH SOLVENT.** Solvents such as gasoline, thinner, benzene, carbon tetrachloride, and alcohol may damage and crack plastic parts. Do not wipe them with such solvents. Wipe plastic parts with a soft cloth lightly dampened with soapy water.
- 33. WHEN REPLACING A COMPONENT PART, ADOPT THE SAME TYPE.** When replacing a component part with a new one, adopt the same type of new part. Also, never attempt to repair a power tool yourself.

34. SAVE THESE INSTRUCTIONS

SERVICE AND REPAIRS


All quality tools will eventually require servicing or replacement of parts due to wear from normal use. These operations should **ONLY** be performed by an **AUTHORIZED HITACHI POWER TOOL REPAIR SHOP**.

REPLACEMENT PARTS

When servicing use only identical replacement parts.

DOUBLE INSULATION SYSTEM ENHANCES SAFE OPERATION

To enhance safe operation of this electric power tool, HITACHI has adopted a double insulation system. The term "double insulation" used here denotes an insulation system with two insulations physically separated and arranged between the electrically conductive material connected to the power supply and the outer frame subject to contact by the operator.

Thus, the power tool is termed double insulated and both the "  " mark and "Double insulation", or either one is indicated on the name plate.

While no external grounding is required with this system, normal safety precautions as outlined in this manual must still be followed.

To maintain the effectiveness of the double insulation system, follow the precautions described below:

1. Always contact your dealer or an authorized HITACHI service agent when assembling, disassembling or replacing parts other than accessories or carbon brushes. Improper assembly and/or replacement with wrong parts may result in eliminating the double insulation-feature.
2. Clean the exterior of the tool with a soft cloth moistened with soapy water, and dry thoroughly. Chloric solvent, gasoline, and thinner will cause plastic components to dissolve.



PRECAUTIONS ON USING ELECTRONIC SANDER POLISHER

1. Keep away from a revolving sanding disc and wool bonnet.
2. Pay strict attention to sparks.
3. Use the side handle to securely grip the Disc Sander Polisher.
4. Never use grinding wheel as a disc grinder.
5. Do not use this machine near welding machine.
6. Do not operate on direct current.
7. Should the revolving speed suddenly decrease due to overload, leave the machine from workpiece and turn the switch OFF and then ON again.
8. Do not push the lock pin while the spindle is running.
9. Always hold the body handle and side handle of the power tools firmly. Otherwise the counterforce produced may result in inaccurate and even dangerous operation.

NAME OF PARTS

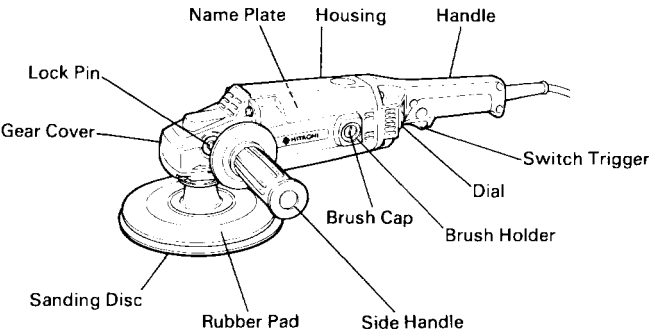


Fig. 1

SPECIFICATIONS

Motor	Single-Phase, Series Commutator Motor.
Power Source	Single-Phase 115V AC 60Hz
Input	1000W
No-Load Speed	1400 ~ 3400 rpm
Sanding Disc Size	
External diam.	7"
Internal diam.	7/8"
Weight	6.6 lbs.

STANDARD ACCESSORIES

CAUTION

Recommended accessories for this Electric Power Tool are mentioned in this manual. The use of any other attachment or accessory might be hazardous.

(1) 7" Sanding Disc	1
(Grain: # 50)	
(2) Rubber Pad (Code No. 953255P)	1
(3) Wrench (B) (Code No. 937913Z)	1
(4) Side Handle (Code No. 937981Z)	1

APPLICATIONS

- Sanding metal surfaces.
- Preliminary sanding of metal surfaces before painting, rust removal, removing old paint before repainting.
- Finishing woodwork, correcting projections of timbers from joints or assemblies.
- Preliminary sanding of wood surfaces before applying paint.
- Polishing or shining painted metal surfaces, such as those of automobiles, trains, elevators, refrigerators, sewing machines, washing machines, metal appliances, etc.
- Polishing varnished surfaces of wooden furniture, etc.
- Shining synthetic resin or ebonito products.

PRIOR TO OPERATION

1. Power source

Ensure that the power source to be utilized conforms to the power requirements specified on the product nameplate.

CAUTION: Do not operate on Direct Current power source.

2. Power switch

Ensure that the power switch is in the OFF position. If the plug is connected to a power receptacle while the power switch is in the ON position, the power tool will start operating immediately, inviting serious accident.

3. Extension cord

When the work area is removed from the power source, use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.

CAUTION: Damaged cord must be replaced or repaired.

4. Confirming condition of the environment

Confirm that the work site is placed under appropriate conditions conforming to prescribed precautions.

When sanding a thin steel plate, depending upon the state of the workbench, a loud noise will be created due to resounding noise from the steel plate being ground. To eliminate unwanted noise in this instance, place a rubber mat beneath the material to be ground.

5. Confirming the power receptacle

If the power receptacle only loosely accepts the plug, the receptacle must be repaired. Contact the nearest electric store for repair service.

If such a faulty receptacle is used, it may cause overheating, resulting in a serious hazard.

6. Confirming and mounting the sanding disc and wool bonnet

Confirm that the sanding disc is mounted under the specified condition and is firmly clamped.

For details, refer to the item "Assembling and Disassembling the Sanding Disc and Wool Bonnet".

7. Confirm the lock pin

Confirm that the lock pin is disengaged by pushing lock pin two or three times before switching the power tool on.

8. Fixing the side handle

Screw the side handle into the gear cover.

PRACTICAL ELECTRONIC SANDER POLISHER APPLICATIONS

● For use as a Sander

Motor speed can be varied as desired by rotating the dial;

It is increased by turning the dial towards "E", decreased by turning it towards "A" (Fig. 2). Select the motor speed appropriate for the work being done. The following table gives the motor speeds corresponding to each indication on the dial scale and shows the types of work for which they are suitable.

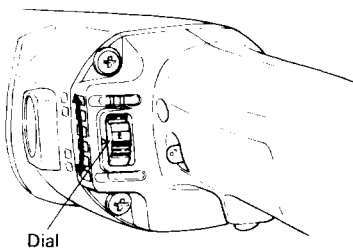


Fig. 2

Dial Indication	R.P.M.	Type of works
A	1400	For polishing
B	1900	
C	2400	
D	2900	For sanding
E	3400	

CAUTION

The dial cannot be rotated further than the "E" or "A" on the scale in their respective directions.

1. This unit is designed to provide sufficient polishing (sanding) power with the disc pressed lightly against the sanding/polishing surface: it is equipped with an electronic control circuit to ensure that the motor will not slow down even when loaded. There is therefore no need to press the sanding disc hard against the surface; doing so can overload the motor, subsequently causing the overload cut device to step into operation by cutting the motor's power supply. If this should happen, cut the power switch and turn it back on to reset the unit: it will resume rotation at the correct motor speed.

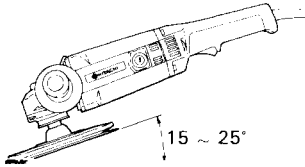


Fig. 3

2. Rather than applying the entire disc surface to the metal surface to be ground, use the sander by inclining it approximately $15^{\circ} \sim 25^{\circ}$ to grind with the disc peripheral portion. (Fig. 3).

3. Switching on the sander polisher

When the trigger is pulled, the switch is turned ON, when the trigger is released, the switch is turned OFF.

4. Precaution after use

Do not lay the sander polisher down immediately after use in a place where there are many shavings and much dirt and dust until it has completely stopped revolving.

● For use as a Polisher

1. Curved surface as well as plain one is treated for finishing. It is recommended to hold the polisher without pushing on the material, and make the best of its own weight as the excess pressure on the polishing surface will not only bring unsatisfactory result but also put unnecessary load on the motor.
2. Polishing compound or wax are used corresponding to the state of finishing and the maximum polishing effect will be attained when the following method is taken.

Polishing with a sander using fine sanding disc.

Polishing with wool bonnet using compound substance final waxing.

First put the compound and wax in small quantity on the surface to be polished, then, give a polish with the wool bonnet.

CAUTION

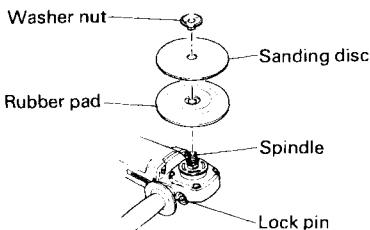
Carefully guard against permitting the cable cord to touch the wool bonnet or sanding disc during operation. If the cord touches them, there is danger that it may become entangled.

ASSEMBLING AND DISASSEMBLING THE SANDING DISC AND WOOL BONNET

CAUTION

Be sure to switch power OFF and disconnect the attachment plug from the power receptacle to avoid serious trouble.

● For use as a Sander (Fig. 4)



- (1) After placing the sanding disc on the rubber pad, thread the washer nut onto the spindle.
- (2) Press the lock pin to secure the spindle and tighten the washer nut with a wrench.
- (3) To remove the sanding disc, follow the above-mentioned procedure in reverse order.

Fig. 4

● **For use as a Polisher (Fig. 5)**

- (1) Insert the washer nut through the rubber pad and thread it onto the spindle.
- (2) Press the lock pin to secure the spindle and tighten the washer nut with a wrench.
- (3) Wrap the rubber pad with the hood of the wool bonnet and firmly secure it by tying a string around it. Be sure the excess string is firmly tucked inside the wool bonnet to prevent it from flying out while polishing.

The unbalanced fitting of the wool bonnet may cause the vibration (Fig. 6).

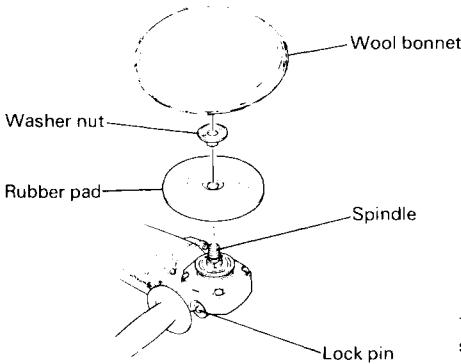


Fig. 5

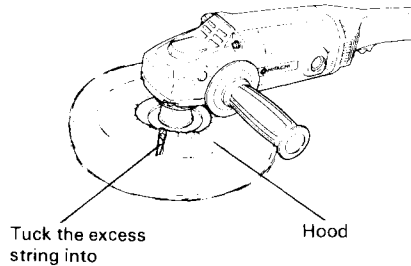


Fig. 6

- (4) To remove the wool bonnet, follow the above-mentioned procedure in reverse order.

CAUTIONS

- Use a wrench to tighten the washer nut sufficiently.
- After releasing the lock pin, check to be sure that it has returned to its normal position.

MAINTENANCE AND INSPECTION

CAUTION

Be sure to switch power OFF and disconnect the plug during maintenance and inspection.

1. Inspecting the mounting screws

Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loose, retighten them immediately. Failure to do so could result in serious hazard.

2. Inspecting the carbon brushes

The motor employs carbon brushes which are consumable parts. Since an excessively worn carbon brush could result in motor trouble, replace the carbon brush with a new one which has the same carbon brush No. shown in figure when it becomes worn to or near the "wear limit". In addition, always keep carbon brushes clean and ensure that they slide freely within the brush holders.

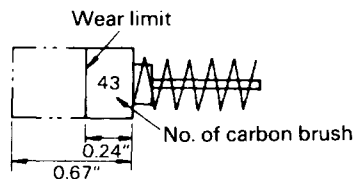


Fig. 7

3. Replacing a carbon brush

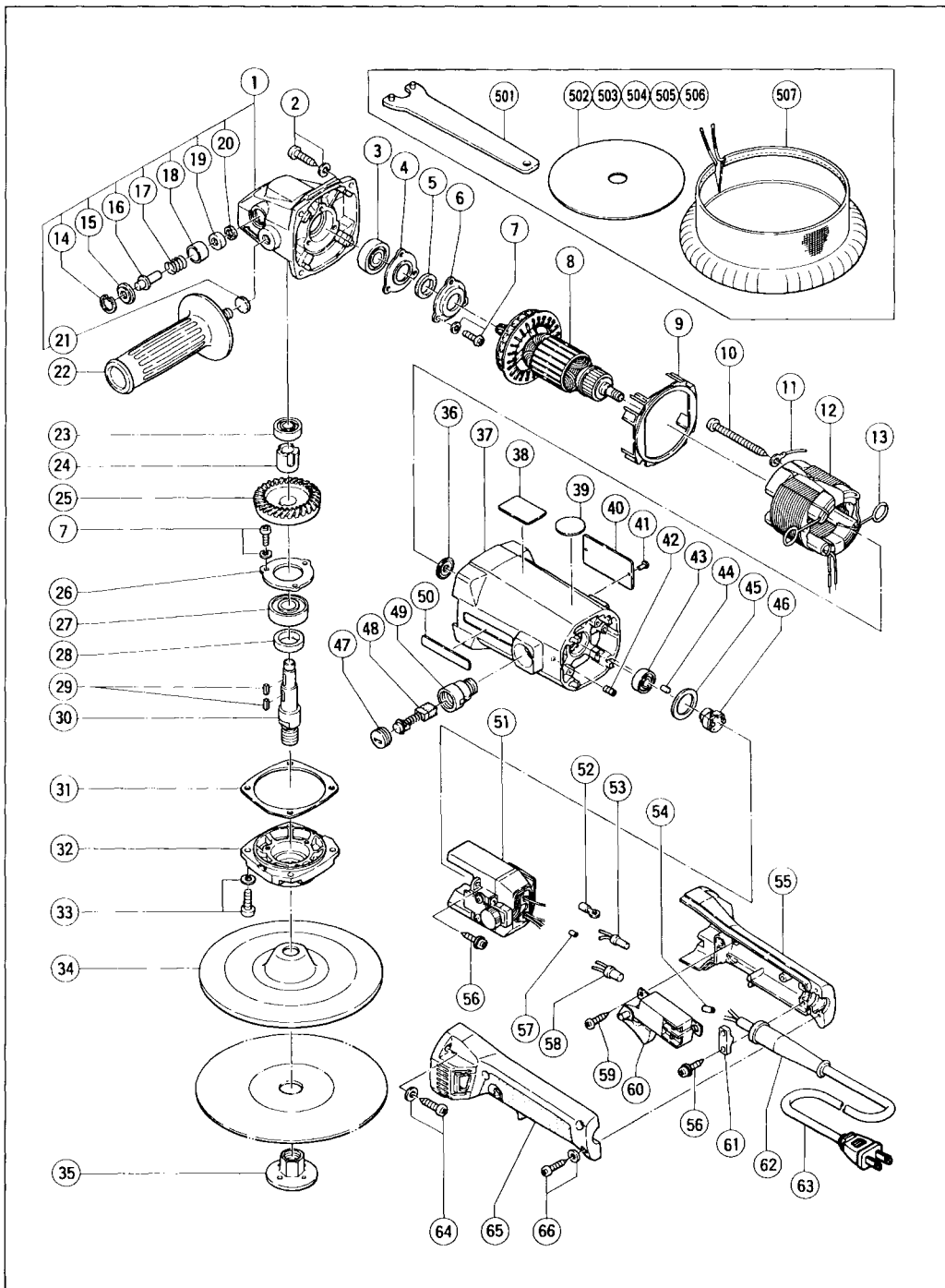
Disassemble the brush cap with a minus-head screwdriver. The carbon brush can then be easily removed.

4. Cleaning lock pin section

If the lock pin section becomes dirty, clean it at once.

NOTE

Due to HITACHI's continuing program of research and development, the specifications herein are subject to change without prior notice.



Item No.	Part Name
1	Gear Cover Ass'y
2	Tapping Screw D5 × 25
3	Ball Bearing (6201T12VVC3)
4	Distance Plate
5	Felt Packing (A)
6	Bearing Cover
7	Machine Screw M4 × 12
8	Armature
9	Fan Guide
10	Tapping Screw D5 × 55
11	Internal Wire
12	Stator Ass'y
13	Brush Terminal
14	C-Type Retaining Ring
15	Dust Seal
16	Lock Pin
17	Spring
18	Ring
19	Bushing
20	Felt Packing (C)
21	Felt Washer
22	Side Handle
23	Ball Bearing (6000VVC M)
24	Sleeve
25	Gear
26	Bearing Cover (A)
27	Ball Bearing (6202VVC M)
28	Felt Packing
29	Feather Key 3 × 3 × 10
30	Spindle
31	Seal Packing (B)
32	Packing Gland
33	Machine Screw M5 × 16
34	Rubber Pad
35	Washer Nut
36	Dust Seal (A)
37	Housing Ass'y
38	Setting Sheet
39	Mark Plate
40	Name Plate
41	Rivet D2.5 × 3.2
42	Hexagon Socket Hd. Set Screw M4 × 8

Item No.	Part Name
43	Ball Bearing (608VVC2)
44	Bearing Lock
45	Dust Seal
46	Rotor (B)
47	Brush Cap
48	Carbon Brush
49	Brush Holder
50	HITACHI Label
51	Speed Controller
52	Terminal
53	Connector
54	Tube (D)
55	Handle (A)
56	Tapping Screw D4 × 16
57	Tube (D)
58	Connector
59	Tapping Screw D4 × 12
60	Switch
61	Cord Clip
62	Cord Armor
63	Cord
64	Tapping Screw D5 × 25
65	Handle (B)
66	Tapping Screw D4 × 20
501	Wrench
502	Sanding Disc 180mm CC # 24
503	Sanding Disc 180mm CC # 30
504	Sanding Disc 180mm CC # 50
505	Sanding Disc 180mm CC # 80
506	Sanding Disc 180mm CC # 120
507	Wool Bonnet 180mm

Parts are subject to possible modification without notice due to improvements.